

Application number: 09/396005

Art Unit: 3621

Applicant: Khai Hee Kwan

Examiner: James A Reagan

Title: Method, apparatus and program to make payment in any currencies through a communication network system using prepaid cards

Specification

We respectfully ask the examiner to enter the following amendments.

- 5 Please INSERT paragraphs in Appendix A (Clean Version- 10 pages only) immediately under the label " Objects of Invention/Summary of Invention ". Paragraphs originally found in "Objects of Invention/Summary of Invention" will continue from where the last paragraph in Appendix A ends.
- 10 Please REPLACE the entire sections labeled as "Background of Invention" and "Background Art" with Appendix B (Clean Version- 2 pages only) as attached.

Remarks

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The current Final Office Action repeats much of the substance in the previous office action letter Oct 21, 2004. Therefore it will be easier to address the examiner's " response to arguments" starting at page 8 of the FINAL Office Action.

20

The examiner asserted at page 8 "Applicant has provided a specification that does not correspond to customary US practices. Applicant may wish to revising the sections to better conform with standard US Patent Applications." The applicant wish to submit that with the co-operation of the examiner the Amendments requested above in Specification,

25 should resolve this matter.

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Background Art Issue

As to claim 13 the examiner concluded that the applicant's voluntary admission regarding the state of the art and the examples provided were given in full faith and credit by the
5 examiner as testimony by one of at least ordinary skill in the art at the time the invention was conceived. Therefore, the examiner dutifully accepts the Applicant's background information as factual.

The applicant submits that the subject matter in Background Art is work of his own.
10 Furthermore, in case there is any further doubt, the Applicant also wishes to submit that as far as the substance in claim 13 is concerned, they are NOT found in "Background Art". They are in fact found in page 21 (before the above specification amendments) under the label of "Objects of Invention/Summary of Invention" of the specification or
alternatively 2 paragraphs just before the label "Brief Description of the Drawings" (
15 looking back). And we quote "In accordance with another object of the invention, the method and apparatus provide for the wire transfer of funds to a transferee over this network. In order to carry out the wire transfer, the user enters his own account number and password and the account number of the person who is to receive the wire transfer. Preferably, a receipt code is issued to the user. In the preferred embodiment of the
20 invention, the actual payment for the wire can be seen as a mere book transfer between two accounts, that is debiting the user and crediting the recipient's account and once this is completed, the user will be given a receipt number by the host computer and the host computer will dial the recipient's telephone number (if any) to inform the recipient of 'new developments' in his/her account. Alternatively, an email can be sent. The latter is
25 optional and of course a fee will be charge for this service."

Claim 13 (Note Claim 17 and 22 are replaced by Claim 34 and 39 written in the classical claim format)

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AUTOMATION ISSUE.

The examiner had mainly relied on "automation" to show our element "without interacting with payee". We respectfully traversed.

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The examiner provided C4, L49-52 (see page 15) which states "According to a broad aspect of the invention, an electronic monetary system provides for transactions utilizing electronic money including electronic currency backed by demand deposits in a bank in lieu of cash transactions, and electronic credit authorizations. The invention comprises a

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money module for generating the electronic money; a money module for issuing, distributing, and accepting the electronic money; and a money module for accepting, storing, and transferring the electronic money between other accepting money modules and between the accepting money module and the issuing money module. " (emphasis added)

15

The applicant respectfully submits that the above does not show any means for automation. In fact, it actually teach AGAINST our claimed element of "credit and debit" (see underlined above). In fact the "automation" disclosure is found at C1, L 19 to C2 L 49 which we have reproduced below:

20

<beg>
Today, approximately 350 billion coin and currency transactions occur between individuals and institutions every year. The extensive use of coin and currency transactions has limited the automation of individual transactions such as purchases, fares, and bank account deposits and withdrawals. Individual cash transactions are burdened by the need of having the correct amount or providing change therefor. Furthermore, the handling and managing of paper cash and coins is inconvenient, costly and time consuming for both individuals and financial institutions alike.

25

Although checks may be written for any specific amount up to the amount available in the account, checks have very limited transferability and must be supplied from a physical inventory. Paper-based checking systems do not offer sufficient relief from the limitations of cash transactions, sharing many of the inconveniences of handling currency while adding the inherent delays associated with processing checks. To this end, economic exchange has striven for greater convenience at a lower cost, while also seeking improved security.

30

The Automated Clearing House (ACH) and point of sale (POS) systems are examples of electronic funds transfer systems that have become used by retail and commercial organizations on a substantial basis in

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recent years. However, the payments made through these types of EFT systems are limited in that they cannot be performed without the banking system. Moreover, ACH transactions usually cannot be performed during off business hours.

- 5 To implement an automated, yet more convenient transaction system that does not require the banking system to intermediate the transfer, and that can dispense some form of economic value, there has been a trend towards off-line electronic funds transfer. For example, numerous ideas have been proposed for some form of "electronic money" that can be used in cashless payment transactions as alternatives to the traditional currency and check types of payment systems. See U.S. Pat. No. 4,977,593, entitled "METHOD
10 AND APPARATUS FOR IMPLEMENTING ELECTRONIC CASH," and U.S. Pat. No. 4,305,059, entitled "MODULAR FUNDS TRANSFER SYSTEM."

- 15 None of the paperless payment systems that have been proposed so far are comprehensive enough so as to implement a multipurpose electronic monetary system that includes not only the automated devices that allow subscribers to transfer electronic funds or money between them without any intermediating system, but that also encompasses and includes an entire banking system for generating the value represented by the electronic money and for clearing and settling the electronic money accounts of the banks and financial institutions involved to maintain a monetary balance within the system.

- 20 Thus, there is a need for a system that allows common payor to payee economic exchanges without the intermediation of the banking system, and that gives control of the payment process to the individual. Furthermore, a need exists for providing a system of economic exchange that can be used by large organizations for commercial payments of any size, that does not have the limitations of the current EFT systems.
25 <end>

- As can be seen above underlined, Rosen's automation discussion is about issues with the number of coins and currency solved by using E-Money and NOT as the examiner stated to automate his invention of transferring without interacting with payee. Although the
30 word "automation" is broad, it is only so for a different subject matter in Rosen. Therefore his invention basically calls for use of universal E-money without a banking network for transfer. Furthermore as we pointed out Fig 36 clearly shows beyond a reasonable doubt that it has to interact with payer and payee. This is the most visible demonstration of Rosen's version of "giving control of the payment process to the
35 individual" which is different to our claim invention whereby without interacting with payee.

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DATABASE ELEMENT

Given that Rosen uses a module to module transfer, there is no database to effect a debit of payer and a credit of payee accounts. This is crucial as it shows that Rosen is not using an intermediary (such as a host server) to effect the transfer as compare to credit/debit process. In fact a word search in the Rosen Patent reveals the presence of the word "database" only once which is in a reference cited. Therefore it is doubtful Rosen teaching actually include database whereby as per our claimed element accounts/money are stored to debit and credit on demand by payer.

Claims 15, 19, 24 have been canceled.

Claim 16, 20 and 25 have been canceled.

Claim 29

Apparently the examiner had used the previous rejection being " fund is prepaid or stored value." (See page 19 of Action Letter) This is incorrect as these claims have previously been amended to show the reverse – merchant initiated sending of transaction codes to show human submission. Accordingly this rejection in its current form is not sustainable. We have also amended this claim to show some steps to be expressly preformed by merchant server. As to antecedent this can be found as below:

Antecedent at page 4 of original application.

In this Invention, the only middleman is actually a computer that requires physical input from the client.

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Antecedent at page 8 of original application.

Up to the point where the codes are physically inputted back using computer keyboard or telephone pad and transmitted to the host computer, it has no value at all.

5

This reversal means, evidence of actual purchase is put into the hands of the buyer since the buyer has to deal with the host computer which makes it easy to establish relationship later.

- 10 We have also cancel Claim 30 and 31 to better conform with the apparent problem of "independent/dependent claim in the same claim".

Claim 14,35,40

- 15 The examiner asserts that Rosen uses prepaid card and hence a need to store their value. However as mentioned in Rosen at (Col 2 line 16 – 30) showing where Rosen taught away from such card.

- 20 We quote "The more well known techniques include magnetic stripe cards purchased for a given amount and from which a prepaid value can be deducted for specific purposes. Upon exhaustion of the economic value, the cards are thrown away. Other examples include memory cards or so called smart cards which are capable of repetitively storing information representing value that is likewise deducted for specific purposes. However, these proposed systems suffer from a failure to recognize fully the significance of bank deposits as money, and their necessity to back any form of universally accepted monetary representations
- 25 that may be issued. In the systems disclosed thus far, representations of economic value, whether electronic or paper, are issued without the backing of equal valued liabilities as the counterpart to their assets. "

Therefore it is unlikely someone ordinary skilled in the art reading Rosen would implement using any form of prepaid card is obvious.

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The examiner also suggested reasons for implementing such steps to create an account for the user. They include to thwart any possible fraudulent use of an existing account and in view of Rosen to provide stronger protection element.

- 5 The applicant respectfully rejects such suggestions. Firstly, Rosen's module shows no security issue such that it is necessary to provide stronger protection element. Therefore it is obvious the examiner had used hindsight to reach our claimed element. Secondly, the examiner provided no suggestion how this could thwart any possible fraudulent use of an existing account. The prepaid card in our invention could have money that is stored as
- 10 floating or in a database linked to an account identifier for the purpose of making it easier for the user to make use of the stored funds without the prepaid card (in case it get lost or stolen).

- In Rosen using a module, money as tokens (e-money) are stored therein. However these
- 15 tokens are derived from a bank account and as Rosen puts it are fully backed up against deposit money in the bank account. Its obvious here Rosen does not use prepaid cards since prepaid is not the same as deposit on demand. At the time of this invention, it is not known that banks offer prepaid cards (eg for telephone calls). The missing link is where the Examiner had concluded Rosen uses a prepaid card and hence a need to prevent
- 20 fraudulent use by linking it to an account identifier cum protected by a password. The problem with this suggestion is that Rosen fails to teach this. Firstly, its module comes with an identifier similar to IP address preconfigured by the issuing bank. If this is the case why another identifier for the user ? This appears to be redundant. Secondly, the element of fraud seems to be flawed as the examiner concluded that upon the pretext of
- 25 adding more stored value to the card as the reason.

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Fraudulent Case.

If there is no account identifier and password linked to a particular card, according to the examiner's theory then fraudster could easily take over the account and hi-jack the funds floating in the card. We used the word 'floating' to distinguish funds that are not linked to account identifier to the word 'stored' to mean one that has been linked. With an account identifier and password linked this is more difficult and hence the motivation is made according to the examiner's theory.

We submit that such suggestion is flawed. Firstly both methods (stored or floating) are supposed to be indifferent to hi-jacking an account. In short, if someone misplaced the card then it is equally prone to being hi-jacked by another who happened to find the card. Similarly, if someone account identifier and password are known because they use account identifier such as mickey mouse and donald duck or pwd strings like 1234 then these are likely to be compromised as well.

In fact according to our theory, without the physical card, it is more difficult to hi-jack an account that has NOT been previously linked to an account identifier and password than one that has already been linked. The reason is each prepaid card comes with a long security code that is randomly generated by a machine which makes it hard to guess as compared to a human created account identifier and password. It is well known that humans have limited capacity to store passwords and tend to use simplistic memory aid in constructing their passwords like birth dates of love ones or combination. Secondly, the account identifier is not hidden and is known to other users similar to an email account. In fact when someone received funds then it is likely that the sender's identifier is shown. Therefore, the only obstacle is to find the password and according to our theory this is made easy as humans' memory is limited as compared to a machine generated security code (ie without linking to account identifier and password).

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As we mentioned, the only reason why an account identifier and password are used is to help people who are likely to misplace their cards or want to make transfers to another or find it convenient to remember account identifier cum password. However this does not translate to mean it will make it less likely to thwart any possible use by others.

5

Again without citing any evidence, the examiner had applied his own personal knowledge here to reach our claim, we would respectfully insist on an affidavit or declaration setting forth specific factual statements and explanation to support his theory. (see 37 CFR 1.104(d)(2)). In particularly the theory that it is harder to access an account protected by an account identifier cum password as compared to one protected by a security code only.

10

Claims 26,36,41

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This claim refers to formula to store funds. The examiner suggests that because fees/costs are obvious in the business of running an institution hence a conversion rate found in our claim is obvious. The examiner also stated that "As a simple tool for disclosing a stored value, it is non-unique and does not impart any benefit to the invention as claimed" (

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Page 13 of Action Letter).

25

We beg to differ. In re Chu, 66 F.3d 292, 298, 36 USPQ2d 1089, 1094 (Fed. Cir. 1995) (stating that even when changes from the prior art are "minor" or "simple," an inquiry must be made as to whether "the prior art provides any teaching or suggestion to one of ordinary skill in the art to make the changes" (quoting Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 935, 15 USPQ2d 1321, 1324 (Fed. Cir. 1990))).

The examiner also said that "a generic formula with broad variables and undisclosed calculations." The applicant is anxious to know how the examiner arrived at this

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conclusion given the specification details how the calculations are made and there is even an example shown. (See page 29-32 of original specification)

As to the issues of uniqueness and no benefit for the claimed invention. If it is non unique
5 then the applicant would prefer document evidence of this rather than a mere conclusion.
The examiner also provided no evidence to show that it does not impart any benefit to the
claimed invention when calculating the stored value, a matter not found in Rosen or any
kind of stored funds is clearly useful and a benefit for the user. In prior art, telephone
cards or generic prepaid cards only show the amount one paid on its face value and given
10 a fixed time to use the card. By able to store it in a different currency or a longer time
would be a benefit to the user in view that the amount is now being used for payment
within the control of user. Moreover, it is understood at the time of the invention, banks
(where Rosen relies on bank deposits) do not issue prepaid cards and other than banks
there are no other institutions that could calculate interest or cost of money for depositing
15 money. However, banks would be paying interest for the deposit money and not as in our
formula to calculate the 'stored value' by manipulating a combination of fee and rewards
in one. Mathematically this could be shown as 100 in principal and 10 as interest at 10
percent per annum. Using the formula, our stored value could be 80 for 6 months. The
question for one skilled in the art is whether he could arrive at 80 without any knowledge
20 of our formula ? While there are known "discount cards" these cards are for loyalty
program and could not STORED value as there is no value to begin with. It is well
known that discount cards are designed for users to spend (by giving discount) and not to
STORE value. Lastly, even if it is "common sense", this is not the standard in applying §
103. See *In re Lee*, 277 F.3d 1338, 1345 (Fed. Cir. 2002).

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REASONS FOR NEW CLAIMS

The applicant submits that the above new claims incorporate elements which were previously mentioned but were suggested by the examiner to be 'reading' from the

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specification. Although we do not agree but for the sake of expediting this application they are now fully claimed.

5 Given the issues of 35 USC 112 (Second Para) for Claims 17,18, 22-15 and 27-31 (See paragraph 9 of Action Letter), we have canceled these claims and rewrite them to conform with the requirements. They are newly numbered to avoid confusion with existing claims and are mirrored to previously dependent claims.

10 NEW Claims 32,37,42

“whereby said stored funds is not from bank deposits.”

15 As mentioned, Rosen uses E-money 11 (similar to electronic token) to transfer to another module. These E-money is digitized bank deposits usually drawn from savings, investment or check account. In other words, the money belonging to the clients and deposited by the clients of the bank under various accounts (cf with credit accounts
20 where the funds is a credit facility to the client). In our claimed invention we have expressed stated the problem is with non availability of banking facilities (being the source of the problem to avoid the banking network).

25 Since Rosen's E-money is created from bank deposits found in a bank account, our current claim negated this limitation for bank deposits.

Antecedent at page 5 of original application.

30 At the outset, the main problem is how to deposit money in or to convert cash into electronic cash or to digitise it into accounts when there is no banking facility around. For example, to appreciate Phone Banking, one has to open an account with a bank first. This

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is a persistent problem plaguing isolated areas, which may only have telecommunications facilities but no banks or rather banks find it most costly to operate a physical branch where it is not profitable when the main thrust of business being local merchant transactions only.

5

Antecedent at page 9 of original application.

It is also envisaged that this present invention will be used by local residents who do not have a credit/debit card, checking or savings account with a local bank (either because
10 there is no local bank at their area or it is too far), but nevertheless need to pay some bills and have access to a public/private telephone and/or Internet Access.

Our Rebuttal.

15

We submit Rosen's invention is limited by the fact that the source of the funds stored in these modules originates from a bank account or credit line, in short one must have the deposit account or credit line with a bank before able to use them. In fact in order to obtain these modules which are created by banks, one must necessarily have a bank
20 account. The evidence for this is explicitly found in Col 2 ln 24-28 which alluded the need to use bank deposits as money to be backed up in electronic form. Obvious, after the electronic money with the bank signature has been downloaded to a module, said can be used without maintaining the bank depositing facility is clear but this does not mean there is no bank deposit or accounts for creating the E-money at the outset. In short, can
25 Rosen's invention work without having a bank account at all ? We submit that it could not as there will not be any E-money which makes the invention useless. Furthermore, it needs a bank account for cashing out. So even if one is receiving funds there is a need to maintain an account for cashing out.

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Also note at Col 8, line 59-62 : "Of course, the merchant may then transfer the electronic money to another commercial organization to meet its obligations or it may deposit the electronic money at its own bank", this clearly shows the only way to retrieve the money is by depositing it back to a bank account.

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New Claims 33,38,43

ANONYMITY

10 "whereby said payer is unknown to host server"

We have added this element in the current claims. Rosen clearly provides identifiable accounts at the originating banks for users to download their funds so we submit that this element will not be met. If there is no identity to the modules, then it could not be linked
15 to a deposit account to download. We assume the host server is a bank server although strictly speaking there is no host server in Rosen during the transfer process as Rosen's concept is to avoid an intermediary for cost reasons.

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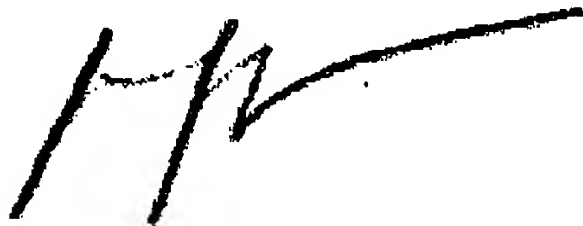
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Declaration 37 CFR 1.132

5

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that
10 these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of any application, any patent issuing thereon, or any patent to which this verified statement is directed.

15



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Appendix A

I

Objects of Invention/Summary of Invention

The present invention relates to the field of applying pre-paid cards and the option of converting to any currencies for electronic payment through a telephone service or by using a data network. Banks already have facilities such as "Phone Banking" which uses a bank centric network system to do transactions provided one has an account with the bank and money available or with either credit/debit card. Unlike this invention, a debit or credit card is not anonymous. The main difference here is that a prepaid card has anonymity, fixed amount and security over the telephone line or Internet as the case maybe. Moreover, the "actual payment" has already been completed securely with the originator/maker or representative of these pre-paid cards and the transaction payment is merely an electronic order to the maker of these cards to transfer the money to the merchant of choice as stipulated by the user. The case here is that "actual payment" is a physical process and the manufacturer or provider of this service carry equal risk of paying to the wrong party should this system fails. The user has little risk since two codes (one from user and one from merchant) are required to initiate a payment and they have to match. If the merchant of choice has an account within this invention, this in most case is merely an electronic book entry. Withdrawal of actual money can be accomplished by transferring funds electronically or by cheque payment through regular banking system.

The choice of credit/debit cards is also limited by the service available to merchants. There are many merchants who do not accept such facilities particular given the rising charges. This system also enables users to make payment to non-merchants by transferring the funds directly into the non-merchant accounts. By using prepaid cards,

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this system is instantaneous and there is no waiting period like in a cheque system. There is also no exorbitant interest rate as per credit cards facilities. There is no interest for money while stored in the pre-paid card.

Another problem with credit cards in electronic commerce is that it is costly to charge for any amount less than USD 5, which makes "micro-payment" problematic. It is envisaged that micro-payment system, that is charging customers USD 1 to 2 to view documents or information (at least as cost effective as a physical magazine or newspaper) is the future to many of the information service organisations.

At the policy level, credit cards seem to disadvantage merchants as well, since if there is any disputes with client and where the merchant cannot evidenced a signature, then the bank providing the service will simply favour the client and deduct the amount from the merchant accordingly. While this may be a policy issue between the credit provider and merchant, most merchants will probably maintain a contingent risk fee if the customer is going to charge by a credit card over the Internet to cover the risk of not receiving funds in the event of a dispute. Therefore there is a need to evidence payment initiated from client.

The current invention is useful because it employed a prepaid mode, hence money will be transferred to merchant accounts. In this Invention, the only middleman is actually a computer that requires physical or manual input from the client. In the case of a credit/debit card, the card sponsors actually pay the merchant first (hence the credit proposition) and charged the full amount with interest to the client. The credit card allows the client to borrow up to a certain amount. The debit card is similar except the policy is to allow the client to spend up to a certain amount within a certain time and to paid in full

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Appendix A

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the amount at the end of the month. Credit Card Company usually earns the bulk in interest plus principal from their clients while debit card providers earn the bulk from their merchants in terms of fees. However, it should be noted that this difference is not so significant anymore as more and more strategic partnerships are being forged. Therefore
5 unlike credit/debit cards where the minimum base cost is the cost of money over the period to billing, we actually receive money in trust first before paying to another so there are no holding and no default risk cost. Rather we are receiving interest from money in trust.

At the outset, the main problem is how to deposit money in or to convert cash into
10 electronic cash or to digitise it into accounts when there is no banking facility around. For example, to appreciate Phone Banking, one has to open an account with a bank first. Unfortunately, banks are closing doors. This is a persistent problem plaguing isolated areas, which may only have telecommunications facilities but no banks or rather banks find it most costly to operate a physical branch where it is not profitable when the main
15 thrust of business being local merchant transactions only. With rising banking service fees and depositing requirements, marginalised communities may miss out on new challenges such as the fee based information from Internet by simply not able to take part in the transaction side of Electronic Commerce.

Alternatively, the same situation may be faced by Electronic Commerce if there is
20 no physical bank to convert real cash into electronic cash for payment. Some people loathe the idea that the world payment system will eventually be cashless and would prefer maintaining a cross between the two systems. The main excuse is privacy, which is matter of preference. This invention stands in as a solution.

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Appendix A

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Electronic Commerce means dealing with International Businesses, a need to convert instantly to a foreign currency is paramount as well as the need for secure technology. By conforming to appreciated methods, this invention solves the perceived insecurity of presenting codes by reversing the roles of merchant to providing payment codes instead of receiving credit card's numbers. Secondly, we also do away with static numbers, so while interception is still possible at this stage but effectively discourage since the data here refers to dynamic and time controlled payment codes rather than static data. The interceptor will need further effort to break down the codes and even if that is successful, it is only one part of the payment process which requires a matching code (under this invention) to execute the payment sequence which is then linked to the actual instrument of payment ie the pre-paid card account. As a further discouragement, each pre-paid card is limited in amount and hence limit any potential liability to the same amount. If the Internet is being used, this invention has only one Internet gateway for those who might otherwise prefer transferring financial information through the Internet. This is different from a credit/debit card facility where merchants have payment servers built into their sites linking to the Gateway. It is my belief that security breaches happen because of the many gateways or windows in-between the payment servers and intermediaries. In short breaches happen because of the many links between the card acceptor to the payer. In this invention, the merchants have no access to the financial information and in turn, they must generate/send a payment code instead of receiving financial information. One set of these codes is sent by the merchant system to the buyer in the form of an encrypted email and another to the host computer. For anonymous payment, on receiving this code, the buyer has to log onto the World-Wide-Web site of

Appendix A

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this Invention (the host computer) to input this code which usually has a timed life. This code will be analysed and matched to the merchant's code and the details of the purchase will be shown for verification. Alternative if he/she has an account or call a special number and follow the instructions to complete the purchase. The buyer will then log on with his passwords. Now if the host computer was able to decrypted the code sent earlier by the merchant computer system, then it would display the payment request in the account of the buyer. The buyer will need to add or input the code he had earlier received into his account to complete the purchase. The host computer will verify both codes and make the proper payment. The most interesting feature here is that no information is ever allow to be transmitted out from the host computer. Even the email is intercepted, the code is encrypted and of little use. Up to the point where the codes are physically inputted back using computer keyboard or telephone pad and transmitted to the host computer, it has no value at all. For account users, a safety feature here is that only buyers can logon to complete the transaction as the password, computer IP address and telephone number are recorded as well. Another difference with other payment scheme is that the merchant has to actually initiate the transaction first when an invitation has been accepted. This is important since, unlike credit card transactions, the merchant cannot accept any codes and instead has to send codes itself to finalise the transaction. This reversal means, evidence of actual purchase is put into the hands of the buyer since the buyer has to deal with the host computer which makes it easy to establish relationship later.

In contrast with a credit/debit card where one credit cards number is fixed for life and it is possible for crackers to break the code and gain access to ones' credit card number or by a means of computer program to second "guess" the credit card number,

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this invention provides random but verifiable codes for different payments each time.

These codes have a life time of usually up to 24 hours.

To process Internet payment, the transaction might involve using a foreign currency. The concept of converting one currency to another is not new, banks, money
5 changers and so on provide this service on a daily basis. When one purchase a pre-paid card in one local currency, one can use it to pay for services denominated in that currency but if it is a service denominated in another currency, then one need to convert it to that currency first. While a credit/debit card facility can provide such a service it is often 'settled' at the rate that the provider of the service consider the most advantages leaving
10 much guesswork by the user of these facilities. In this invention, the user is prompted to the exact foreign currency exchange rate prevailing at that time of initialising the transaction. The user will know exactly how much the conversion rate is and the final amount at that time rather than when the bill arrives. It is then his prerogative to accept or reject this rate and amount. Such prerogative is absent with the use of a credit/debit card.
15 With volatile exchange rate movements, this can be costly.

As mentioned, the spirit of this invention was primarily to find a solution to the problem of banking inactivity in certain communities for various reasons. It is also envisaged that this present invention will be used by local residents who do not have a credit/debit card, checking or savings account with a local bank (either because there is
20 no local bank at their area or it is too far), but nevertheless need to pay some bills and have access to a public/private telephone and/or Internet Access. To economically sustain this invention, 1 to 2 percent revenue can be generated by charging a fee collected when customers pay bills for utilities, such as telephone, electric, gas, and water, as well as

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other bills, such as cable, television or even credit card bills. Advertising which is played at intervals is another avenue. The system described here operates under contract with the local utilities and companies to provide such a payment service.

It is noted that "money" in the system is stored in two formats. The first being
5 "floating" that is represented by the pre-paid card and the second is "stored" that is when money represented by the pre-paid card has been electronically deposited into the user's account in the host computer. Once money is stored in the user's account, the devising pre-paid card is of no value. Payment can be made at any time using the user account. Payment made from a "floating" position will be anonymous. There is a cost to store
10 digital money in the user's account, which is reflected through several variables presented in a "store-value" formula. The final stage is when the "money" leaves the payment system through a deactivation process and/or by cashing out. There is also a cost associated to deactivating the pre-paid card (if it still represent some money) or electronic money in the account through cash out. Hence in summary, this invention provides a
15 possible solution to combine both on-line and off-line payment opportunities within the same system. Depending on desirability, it also preserves anonymity of the user just like physical money.

This invention is designed for low cost maintenance, high usage and applying available technology with the exception of its decrypting and verifying algorithm in
20 generating purchase codes for its customers and matching code for the merchants. It is targeted at low-income society, which has special needs such as safety features, low cost and almost theft proof. For example when the user purchases these pre-paid cards, a receipt will be issued to them. This receipt contains the details of the pre-paid card such

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as the serial number, value and time but not the security features, which are stored on the card directly under some scratch-off material. On each card, there are two sets of peel-able bar codes where the user can keep one set for record. The seller need to peel and keep the other set at the point of sale to be recorded in the daily sale record. At the end of the day, the daily sale record is faxed to the manufacturer of these pre-paid cards. Since they contain only bar-readable codes, they will be scanned immediately and information uploaded to the host computer. If these pre-paid cards are stolen then they can be traced quite easily using the above records and even if the owner lost them by accident, the owner can return to the vendor where he purchase these pre-paid cards to check the records to make a cancellation and a new card is provided. Alternatively, the rightful owner can deactivate these pre-paid cards through a request to the host computer since the serial number of the pre-paid card, value and time of purchase are known or at least traceable from the seller within a reasonable time frame. And because each card has a computer generated trial code, even if these cards have been 'use' that is for some service, such payment will be put on hold. Furthermore, if the thief try to use the pre-paid cards through the network of telephones, the host computer will know from which phone the call was made and inform the authorities. If the thief tries to deposit the money stored in the pre-paid card into his own account, then his identity will be known as all pre-paid cards have a unique tracking number and all accounts in the host computer are linked to the identity of their owners. If the thief tries to deposit into another person's account the amount will be negated. There is nothing to prevent the thief from selling the pre-paid cards in the black market but if the card is suspect then the value of such pre-paid card is no more than the plastic/paper it is made from. It is also difficult to counterfeit since no

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two cards' identity is the same or in sequence. Separate programs are used to assign serial numbers (equivalent bar codes) and security codes with a third program randomly synchronising both numbers to one card. In short, this system is safer than real money since no one can steal or counterfeit them. It is traceable and recoverable. The program is designed as a double entry system where it must receive real money for it to issue a pre-paid card and vice-versa to close an entry. The system is not intended to replace the banking system but serves to supplement certain banking services where the bank no longer provides or regards it as unprofitable. Quite the contrary, banks are suited to be the external link to the system since they can be called on to make payment and receiving wire-transfer to and from this system. For this to be accommodated, back-end integration is required.

By using a prepaid system, there is no monthly bills, no surcharges, which fits into our original desire to reduce transaction costs by assuming there are no intermediaries/administration such as banks. It also serves our requirements for digitising cash since when one purchase a pre-paid card, one actually has exchange real cash for electronic cash or received some perceived notional electronic credit in a computing system. And finally, there is no need for a bank to be selling these pre-paid cards.

In a preferred embodiment, a pre-paid card system enables customers to access a telephone network and obtain transaction services such as paying for water, gas, electricity or services other than making a phone-call. The system includes seven main functional components: a plurality of pre-paid cards, a host computer, a call processor, a programmable database containing unique customer's account numbers/pre-paid cards security tag, unique formulae to calculate the cost of stored value and a currency

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conversion utility with matching interest rates and a security based algorithm to generate, encrypt and decrypt payment codes, serial codes, security codes.

Each of the pre-paid cards preferably includes a body portion and several security features such as security number imbedded under some scratch-off material. There shall
5 be two sets of peel able standard readable barcode shown on the card. The card is typically made of plastic or cardboard. The main management and processing of the system is effected by the host computer, which is connected to the telephone network or over the Internet. The host includes a database for storing number accounts of individuals or corporations, these accounts include private passwords to enter the system, the account
10 balance of these accounts, the activation and security associated with the pre-paid cards, the security trials number for transaction after activation, payment codes and receipt codes. The call processor is controlled by the host computer for interfacing one of more customers to the telephone network using the authorised pre-paid cards. A different interface is through the World Wide Web which is controlled by the host computer
15 replicating the process of accepting payment request.

The system should also include a general accounting and billing information so that system operator can determine which point of sale operator has sold and deactivate a particular pre-paid card. This enables the system operator to reconcile all transactions at the end of the day.

20 Applying the disclosed invention in a different manner or modifying the invention as will be described below can attain many other beneficial results. Accordingly, referring to the following Detailed Description of the preferred embodiment may have other objects and a fuller understanding of the invention.

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Appendix B

Background of Invention**Field of the Invention**

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This invention advantageously relates to a method, apparatus and program to make payment in any currencies through a communication network such as a telephone service or data service such as the Internet. This invention relates generally to a telephone payment service in lieu of banking services such as electronic fund transfer and more particularly to a pre-paid card system having a remote terminal such as a phone or data input terminal and host computer with a database for accounts for verification of these cards in pre-paid amounts, transaction codes, payment codes, receipts codes and their respective user/owners.

10
15**Background Art**

In the operation of the prior art system, pre-paid cards are mainly use for telephone services and are already well accepted in the community. The reason for this was mainly because of convenience, zero-administration and lower access fees. Such cards are typically purchased from vending machines or shop keepers and come in fixed value increments, for example, \$10, \$50. A \$10 card provides a customer with a certain number (eg 30) minutes of long distance time from any touch phone telephone to any location in the country or internationally.

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These cards are batch activated by the card provider in a limited number of predetermined values to make telephone calls. A customer purchases one of these pre-activated cards by paying a fee usually the face value of the card. Similarly, the card typically included a predetermined identification code and a special password code is obscured by a scratch off material. To use the card, the customer accesses the service (usually through an 800-number), enters the identification code (typically obtained from the back of the card), dials the destination number and the call begins. Prior to dialling, the system may inform the user of then-current card balance. If during a call the time remaining on the card is about to expire, the customer may be prompted (through a voice over) that only a certain amount of time remains. When the designated time has expired, the call is terminated.

The below has outlined some of the more pertinent objects of the present invention. These objects should be construed to be merely illustrative of some of the more prominent features and applications of the invention. Applying the disclosed invention in a different manner or modifying the invention as will be described below can attain many other beneficial results. Accordingly, referring to the following Detailed Description of the preferred embodiment may have other objects and a fuller understanding of the invention.

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